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# Cloud workload planning and placement: a new opportunity

*Identifying the right mix of deployment models and understanding migration requirements when moving applications to the cloud*

## Challenges

Cloud is supposed to be easy. After all, cloud is becoming the ubiquitous approach for practically anything IT because it's so simple to use. Just spin up new capacity, on-premises or off-premises. As your organization evolves, opportunities emerge, and requirements change, cloud is likely becoming the default infrastructure for your new workloads and applications.

However, with that simplicity comes hidden complexity. Cloud workload planning and placement is becoming the new IT conundrum. Simply put, what will you do to take best advantage of cloud capabilities?

After all, you have many existing workloads that remain on existing infrastructure – even though some of it is costly, unreliable, and hard to manage. Some workloads could and should be moved to the cloud. But how do you prioritize? Assessing requirements, opportunities, and priorities becomes a challenge that's hard to manage consistently with internal skills and resources.

Even if you identify a workload that's a good fit for cloud, which cloud? Some workloads would benefit from commodity cloud while others require the security of enterprise cloud. In many cases workloads require major overhauls or have to be re-architected to work well on cloud.

Overall, organizations need a better way to identify and prioritize workloads that can be moved to a cloud-based infrastructure that's more cost effective and efficient.



Here's what an ad hoc approach looks like:

- Will my application workload run in a cloud environment?
- Do I need to rework my application to make it cloud-ready?
- What are the short and long term business and technical requirements for this workload?
- Will this move boost agility? Speed? Innovation? Time-to-market?
- What are the privacy and security concerns with this workload?
- Are there any regional or governmental regulations that must be followed?
- Would this workload benefit from a multi-cloud or multi-environment application architecture?
- How can I quantify the benefit of migration?

Answering these questions is a little daunting for one workload. Imagine asking these questions for dozens or hundreds of applications.

The fundamental problem is that most IT managers are working with little or no data, limited skills, and no tools to drive consistent decisions. The result is often a collection of semi-informed judgments about possibilities and opportunities.

Under those circumstances, many IT managers hire consultants, looking for outside expertise to structure and manage a large application rationalization project. But that's a process that can be very complicated, time consuming, and expensive.

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Organizational success in the cloud depends on accurate, consistent and timely information to prioritize the readiness and benefit from the cloud. A meaningful assessment is a necessity. Organizations need a decision tree that isolates the

key factors, highlighting and quantifying workload benefits and readiness for a determined target infrastructure. A consistent decision tree could, if employed effectively, deliver a roadmap of prioritized workloads along with actions needed to help ensure a successful migration.

### **IBM's distinctive approach**

IBM is one of the forerunners of applying complex Operations Research (OR) techniques to business problems; techniques that have long been used to optimize airline patterns and military movements. IBM's advanced analytics include basic business analytics, such as linear regression and descriptive statistics, and also more advanced techniques for business management, including demand forecasting, impact analysis, root-case analysis, simulation, and optimization.

Many solutions depend on regression for decision support. IBM recognizes that regression isn't enough – organizations need more sophisticated tools to stay competitive in the digital age. IBM's advanced analytics provide more accurate, dependency-aware analysis that's validated with real customer experiences. IBM's approach equips customers with near real-time business information that identifies the consequences of given business decisions. This kind of breakthrough can decrease an organization's dependency on outside expertise and produces nearly real-time action-driven analysis.

This advanced analytics is woven throughout the IBM cloudMatrix platform, but it is very prevalent in the IBM® cloudMatrix Planning solution.

### **IBM cloudMatrix overview**

The IBM cloudMatrix Planning solution utilizes operational research and mathematical models to turn users' real experiences into a web-based engine.

What does that mean? Basically, IBM has integrated thousands of hours of expertise into a self-service tool. The IBM cloudMatrix solution delivers an evidence-based approach that limits guesswork. It can map your interdependencies, create a dynamic decision tree, and assign weights to various parameters, giving you a framework for delivering consistent and more accurate results. With IBM cloudMatrix you can feel confident in the placement and prioritization of applications to the cloud.

## IBM has broken the process into three steps, each with robust, intelligence-based tools to assist your organization

**Assessment and prioritization:** First, the IBM cloudMatrix solution helps you to identify the relative readiness and benefit of moving a given application to the cloud. It then recommends the ideal target infrastructure for your organization. In the end, you will have a map of all your workloads and their relative readiness and benefit. You'll also know what additional work or investment is needed to prepare these workloads for their new target infrastructure.

**Provider matching and selection:** Simple side-by-side comparison of provider services to more easily match capabilities with requirements. Most often a single provider will not match all your requirements, so a set of providers may be needed to design a multi-cloud solution.

**Multi-cloud solution design:** Once you have selected your provider or providers then you need to design a multi-tiered, multi-layered application architecture to get a clear understanding of the interdependencies and costs associated with the solution.

## How does it work?

### Application screener

The first step is the application screener. Using patented analytics, based on unbiased analysis from many deployments and a rich set of current workload data, the IBM cloudMatrix application screener helps planners to more quickly determine project fit, feasibility and benefits of migrations.

It addresses a basic set of questions:

1. Which workloads?
2. In what order?
3. Readiness?
4. Benefits?
5. What infrastructure?

The application screening wizard provides two key recommendations; a matrix of benefits and a cloud readiness assessment. Benefits are measures of improvement (total cost of ownership, performance gains) gained by operating in the cloud. Readiness is a measure of an application's ease to move and run in the cloud, driven by architectural feasibility, platform portability, and application complexity.

The application screener also provides insights into the ideal infrastructure for a particular application. Should the application run on physical, virtual, private cloud, commodity public cloud, enterprise public cloud, PaaS, and/or SaaS? That's hard to assess independently – but the IBM cloudMatrix tool helps provide the answers. By running multiple applications through the wizard, you can easily prioritize which applications should move to the cloud first.

### Cloud compare

Before, choosing a cloud provider has involved some guesswork, because varying pricing and packaging models make it almost impossible to get to a clear comparison. IBM cloudMatrix uses the patented Gravitant Capacity Unit (GCU) to normalize the costs of various providers. What's a GCU? Simply, it's the capacity to compute at a speed of 4.0 GHz with random access memory of 4 GB and local storage of 100 GB through 1Mbps of bandwidth.

IBM uses mathematical modeling to normalize the service provider offerings across price, SLAs, and capabilities. IBM's approach encompasses all your relevant business considerations, making it simple to compare and choose the "best fit" options to meet your business need. You'll save hours by avoiding manual comparisons, and with an apples-to-apples view across providers, you'll be able to select the best option for your organization.

To make it even easier, IBM cloudMatrix provides pre-sized packages for comparison. These are standardized packages, devised from customer research, that can assist you in the side-by-side compare of offerings. It is a starting point to understand cost, capacity and SLAs for a particular sized cloud service – to facilitate cost-projections and longer-term planning. Having said that, you can also customize a package to more closely match your business needs and drive more accurate comparisons.

IBM cloudMatrix helps you make informed tradeoffs between match index and cost. You can either select a small number of expensive providers with extensive offerings (higher match index) each or a larger set of providers with more specific offerings (lower match index) each. The match index can be modeled qualitatively through customer experience parameters or by a quantitative approach using provider features and functions that match customer needs.

## Visual solution designer

It's hard to transform without knowing what you're transforming. Workload placement depends on many factors that are often hard to visualize. With IBM cloudMatrix, you can design virtual data centers (VDCs) from a robust IT-as-a-Service catalog that includes public, private, and virtual resources as well as associated managed services.

The IBM cloudMatrix multi-layered, multi-environment design tool allows you to design complete (infrastructure plus managed services) IT solutions in a fraction of the time. Plus, you can save these designs as solution blueprint templates – decreasing design time and increasing standardization to confirm adherence to security, compliance, and budget standards.

The IBM cloudMatrix visual solution designer helps you easily collaborate to make sure interdependencies are managed and the architecture meets the needs of IT and the business. Perhaps most importantly, you'll be able to build application architectures across multiple VDCs – on-premises or off-premises – mapping relationships to help ensure that migration and evolution doesn't compromise capability.

Each activity for cloud transformation has workforce resource and skill requirements, and the activities need to be organized and scheduled so that the time to complete the migration is limited without exceeding time-dependent budget constraints and without disrupting current operations. The schedule also needs to incorporate dependencies between activities. The visual solution designer helps you to identify, manage, and orchestrate organizational requirements to help ensure that transformation happens in a predictable, successful way.

With this tool, you'll end up with a design that enables tracking and reporting of components in context of the architecture and solution design. Because context is retained throughout the lifecycle, it is easier to determine the return on investment and total cost of ownership at the VDC and architecture level.

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*Workload planning and placement is key to cloud success.*

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## Estimated bill of IT

Know your complete cost before you order. A detailed view of costs, mapped to the solution design, provides users an estimated bill of IT as the last step before you order.

As more legacy resources are replaced with cloud resources, agility increases; however, operation costs can increase as well (since the legacy resources are already paid for, while cloud resources are charged for on a monthly basis). You'll be able to see the impacts and plan ahead for optimized outcomes.

## IBM cloudMatrix benefits

Workload planning and placement is key to cloud success. IBM cloudMatrix offers a self-service workload planning and placement solution that provides a more accurate and consistent, scientific approach to assessing, comparing, and designing application workloads for cloud and multi-sourced environments.

## Expertise built in

Take advantage of IBM expertise, investment in advanced analytics and years of workload placement experience that is embedded in the patented IBM cloudMatrix Planning engine.

IBM cloudMatrix has done the heavy lifting to map the interdependencies, create a dynamic decision tree, and assign weights for each of the characteristics.

IBM has a team that keeps the pricing and capabilities up-to-date. IBM seeks to save customers countless hours of work. IBM cloudMatrix uses the patented GCU to normalize the costs of various providers and provide all your relevant business considerations.

### Evaluate and prioritize

The IBM cloudMatrix application assessment incorporates two key attributes: cloud readiness and cloud benefit. IBM cloudMatrix provides IT a clear understanding of the effort required to make the move to cloud and the agility of the app once in the cloud. Value comes from the ability to compare many applications to determine their relative readiness.

### Accurate cost savings

With IBM cloudMatrix, organizations can design a multi-tier, multi-provider application architecture that results in an estimated bill of IT, exposing the cost of each item in that architecture. The pricing reflects corporate discounts and pricing rules. The users receive an accurate and up-to-date view of the costs before they buy.

However, this is only half the equation. Application rationalizations must also determine the extent of an application's suitability for cloud. Through the assessment process, organizations often uncover changes and actions they want to take to improve the apps readiness score.

Organizations need to understand both the real savings and the real costs before making the final decision to move to the cloud – and IBM cloudMatrix provides valuable information needed for even better decision-making.

### Conclusion

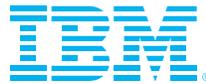
Workload planning and placement is a challenge for organizations, it requires experience, skills, and resources that are not often found in an IT organization. But there's a new way forward. IBM cloudMatrix has embedded advanced analytics and operational research to build out more accurate and intelligent decision support tools.

IBM cloudMatrix helps take the guesswork out of workload planning and placement, helping organizations to be confident, self-sufficient and in a better position to support innovation.

IBM's aim is to help you deliver breakthrough results by:

- Identifying the impactful workloads to move, and what is needed to make the migration successful
- Select the best-fit solution across a wide variety of deployment options
- Design a multi-tiered application architecture that produces a bill of IT before you order

To learn more, visit [www.ibm.biz/brokerageservices](http://www.ibm.biz/brokerageservices)



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